C13. De-eutrophication of shrimp farm effluents by *Ulva reticulata* in a batch culture system

Reza Rabiei[1,3]
Phang Siew Moi[2]
Lim Phaik Eem[2]

[1]*Institute of Biological Sciences, University of Malaya, Kuala Lumpur, Malaysia*

[2]*Institute of Ocean and Earth Sciences, University of Malaya, Kuala Lumpur, Malaysia*

[3]*Agriculture and Natural Resources Research Center of Hormozgan Province, Bandar Abbas, Iran*

Aquaculture systems release large amounts of nutrients into marine ecosystems which can lead to eutrophication. Studies have demonstrated that seaweeds are efficient in reducing dissolved inorganic nutrient concentrations of shrimp and fish culture effluents. In this study the de-eutrophication ability of *Ulva reticulata* Forsskål was investigated in a shrimp hatchery in Kuala Selangor, Malaysia, by evaluating its ability to remove nutrients from shrimp effluents in a batch culture system. Results of the experiments showed *U. reticulata* has strong de-eutrophication capacity to treat shrimp effluents. The biofiltration capacity of *U. reticulata* was confirmed by the significant reduction in NH_3-N, NO_2-N, NO_3-N and PO_4-P concentrations over two weeks of study. The concentration of ammonia nitrogen (NH_3-N) was reduced by 100 %, nitrite (NO_2-N) by 98%, nitrate (NO_3-N) by 30 %, and orthophosphate (PO_4-P) by 93.4 % after six, 24, 48 and 72 hours respectively. The results also showed an increase in biomass and relative growth rate (RGR) of the seaweed over the experimental period. The mean RGR reached a maximum of 1.25±0.28 % d^{-1}. The results of this study indicated that *U. reticulata* can be used as an effective biofilter of shrimp farm effluents.